REMARKS

In view of the Examiner's comments:

a. Claims 2-6, 11-13, 15, 17-18 and 22-49 have been canceled without prejudice;

b. Claims 1, 7-10, 14, 16 and 19-21 have been amended to more specifically define Applicants' invention and to more clearly distinguish it from the cited Nakamoto Patent; and

c. Claim 50 has been added as a re-writing of canceled Claim 13 in independent form.

As a fair reading of the Specification shows -- and as now more clearly set out in the amended claims -- the second electrode of Applicants' diode is placed on the plane below the plane of the first electrode. By virtue of this, it becomes more understandable as to why the nanotube placed on the first electrode is able to protrude into the area of the second electrode. As will also be seen, this ensures that the second electrode is devoid of any nanotubes. As respects Nakamoto's design in this manner, its nanotubes are never able to protrude into the area of the second electrode since its electrodes 22 and 24 are coplanar (FIGURE 3)..

Nor does the fact that Nakamoto's metal layer 44 is slightly higher than the metal layer 46 make any difference. This follows since, according to Nakamoto's design, only its side surfaces 22a and 24a are of any importance, in laterally opposing one another (see FIGURE 3 and FIGURE 6A). As such, it will be evident that both these surfaces in Nakamoto contain the nanotubes -- and, therefor, they are unable to protrude one into the territory of the opposite electrode. Simply stated, the Nakamoto device will be appreciated to be "of a lateral type" in which the electrodes 22 and 24 are "laterally side by side at a small gap of 1 μm to 30 μm", as contrasted in the "non-coplanar" design of the amended claims in which the active distance between the nanotube and the second electrode is controlled by the thickness of the dielectric film of 0.2-0.3 μm separating the electrodes in the vertical direction. This "lateral", "coplanar" nature of Nakamoto, as contrasted with Applicants' "non-coplanar" arrangement is made clear from a consideration of Col. 7, Line 49 of the Nakamoto reference, and at Col. 4, Line 24 of its disclosure.

In view of the amendments made to Claims 1, 7-10, 14, 16 and 19-21 (and further in view

of the re-writing of canceled Claim 13 in independent form as newly added Claim 50) -- the only claims remaining in this Application, many of the assertions of the Examiner are now believed to be obviated;

a. With the assertion that Nakamoto discloses the nanotube as being of a metal type, it should be appreciated that the reference considered the nanotube internal hollow volume as a "nest" to place the metal there (requiring a special kind of nanotube and technology), the claims of the invention now call out the depositing of the metal layer on top of the nanotube; as noted in Applicant's previous Amendment, this is a special property of the nanotube core, without having any metal in hollow part;

b. Furthermore, the Examiner's assertion that Nakamoto discloses the additional metal layer on the nanotube as being made from materials with a "low work function", this is submitted to be in error; Nakamoto discloses the low work function materials only as a **replacement** of the nanotubes, not as an additional layer deposited on top of them as in the present claims (see, for example, Col. 6, Lines 14-15 of the reference); and

c. As to the Examiner's contention that Nakamoto also discloses "a small pad of catalytic material 48 is disposed on the second conductive layer 46", the amended claims (and added Claim 50) do not call out any catalytic material, but a nanotube (or "micro-bodies"); Nakamoto never discloses anything about nanotube growth, nor a selective deposition of them on one of the two electrodes. Simply stated, catalytic pads are not nanotubes.

As a knowledgeable reading of the Nakamoto reference will show, its design is planar, with the current going essentially laterally between the sides 22a and 24a. While the difference there in nanotube height is irrelevant, with the present invention as claimed, there exists no criticality in the nanotube height for the device operation; i.e. the grown nanotubes can be higher, below or coincide with the height of the first electrode. It is preferable, however, to keep the height somewhat closer to that of the first electrode, as set out in some of the finally rejected claims -- but, critical to the operation of Applicants' vacuum devices is the fact that the first electrode is above the second electrode to keep the nanotube tip in close proximity to the first

electrode. As will be appreciated, with the vacuum devices as presently claimed, the current proceeds vertically, while in Nakamoto, the current proceeds laterally, and the difference in the electrode or nanotube height is unimportant.

It is for this reason that the method of making Applicants' first electrode higher than the second one is not important -- it being critical, however, that the electrodes are not coplanar. The fact of the electron protrusion is the key to operation of the claimed vacuum devices, something which is not possible with Nakamoto.

These features are now deemed to be present in each of Claims 1, 7-10, 14, 16, 19-21 and 50. An Amendment along these lines was submitted November 14, 2005, but was not entered on the ground that it raised new issues requiring further consideration and/or search.

Allowance of Claims 1, 7-10, 14, 16, 19-21 and 50 is respectfully requested as well. Should the Examiner adhere to the Final Rejection, it is requested that this Amendment be entered for purposes of Appeal.

Respectfully submitted,

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